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10/544,227	08/02/2005	Yoshinori Terui	276171US0PCT	2363
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OBLON, SPIVAK, MCCLELLAND MAIER & NEUSTADT, P.C. 1940 DUKE STREET ALEXANDRIA, VA 22314			EXAMINER VIJAYAKUMAR, KALLAMBELLA M	
			ART UNIT	PAPER NUMBER
			1793	
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			07/11/2008	ELECTRONIC

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

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<b>Office Action Summary</b>	<b>Application No.</b> 10/544,227	<b>Applicant(s)</b> TERUI ET AL.	
	<b>Examiner</b> KALLAMBELLA VIJAYAKUMAR	<b>Art Unit</b> 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) ☒ Responsive to communication(s) filed on 26 August 2005.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) ☒ Claim(s) 1-10 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 02 August 2005 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All    b) ☐ Some \*    c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892)            | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)   | Paper No(s)/Mail Date. _____                                      |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>08/02/2005</u> .  | 6) <input type="checkbox"/> Other: _____                          |

### DETAILED ACTION

- This application is a 371 of PCT/JP 04/01035 filed 03 February 2004, and claims foreign priority benefits under 35 USC 119 (a)-(d) over JP 2003-025718 filed 03 Feb 2003.
- The preliminary amendment filed 08/26/2005 amending abstract, specification and claims has been entered. Claims 1-10 as amended are currently pending with the application.
- The examiner has considered the IDS filed 08/02/2005.
- The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609.04(a) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

### ***Claim Rejections - 35 USC § 103***

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

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This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

1. Claims 1-2, 4 and 7-10 are rejected under 35 U.S.C. 103(a) as being obvious over Terui et al (JP 09-270240).

Terui et al (JP-240) teach a thermal field emission cathode having a needle electrode prepared by forming a cover layer comprising zirconium and oxygen on a tungsten single crystal whose axial orientation is  $\langle 100 \rangle$ . In the thermal field emission cathode, at least one element selected from 2A group elements or 3A group elements is added to zirconium oxide to form solid solution, and thereby, cubic system zirconium oxide, which is stable phase to repeated temperature rising and falling, and/or tetragonal system zirconium oxide, which is metastable phase, are/is formed to prevent the coming off of a reservoir (Abstract; Claims 1-3). The preferred composition contained 20 wt% CaO with zirconia (P-0019). The method of making the electrode comprised welding a tungsten wire with  $\langle 100 \rangle$  plane (W[100]) orientation to a tungsten wire. The wire W[100] was coated with a slurry of calcined zirconia and calcia. The slurry coated wire was heated in the range of 1400-1800K under vacuum and applied potential, and cooled without applied potential (P 0012, 0018-0021). The application of positive potential to the tungsten wire to protect it from oxidation under processing conditions would have been obvious because reducing the oxidation of metals by applying positive potential is well known (See Bhavani et al, Abstract, Bull. Mater. Sci., 1980, 2(4), 265-270). The prior art further teaches a scanning electron microscope containing the electrodes, and the use of electrodes in electron beam apparatus (P-0022, 0027).

The prior art fails to teach a composition containing barium per claims 1 and 9-10; and more than one Gp-2A element per claim-4. It is also silent about the operational parameters per claim-7, operational temperature of the electrode per claim-9, and fails to teach instant claimed temperature range per claim-10.

However, the prior art teaches the addition of at least one or more element chosen from Group-2A i.e. alkaline earths, and it would have been obvious to a person of ordinary skilled in the art to add barium in the composition chosen from a small group of alkaline earths because of similar properties of Ca and Ba with predictable results and reasonable expectation of success, and the prior art is suggestive of it, and the selection of a known material based on its suitability for its intended use supported a prima facie obviousness determination in *Sinclair & Carroll Co. v. Interchemical Corp.*, 325 U.S. 327, 65 USPQ 297 (1945). The resultant oxide composition meets the limitation of complex oxide in the claims 1 and 4.

With regard to claim-2, it would have been obvious to a person or ordinary skilled in the art to include a Group-3A element in the electrode composition of Terui et al with predictable results and reasonable expectation of success, because the prior art teaches the addition of at least one or more sorts of elements chosen from 2A and 3A (Claim-3).

With regard to claims 7-8, the prior art teaches using the electrode in a SEM and electronic beam apparatus <claim-8>, and the claimed operating parameters in claim-7 would have been obvious to a person of ordinary skilled in the art over optimizing the operating parameters of the equipment as a choice of design of the electrode use, because they have similar composition, structure and utility as electron source, and such use and optimization is well known in the art (See Terui et al, JP 2001-325910; Abstract; P-0004, 0020, 0021, 0023)

With regard to claim-9, the prior art teaches a functional SEM containing the electron gun using the prior art electrode, and claimed method of its use would be obvious. The needle temperature in the prior art composition would be obvious because prior art composition, structure and utility are similar to that by the applicants and similar compositions are expected to possess similar properties/characteristics.

With regard to claim-10, the prior art range of 1300-1800K for heating the sample over laps with instant claimed range of 1000K-1700 K, and In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In *re Wertheim*, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In *re Woodruff*, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

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2. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being obvious over Terui et al (JP 09-270240) in view of Terui et al (JP 2001-325910) and Nishiyama et al (JP 10-154477).

The disclosure on the composition and structure of a thermal field emission cathode by Terui et al (JP -240) as set forth in rejection-1 under 35 USC 103 (a) is herein incorporated.

The prior art fails to teach the flat tip electrode per claim 5, and a <211> plane per claim-6.

In the analogous art, Terui et al (JP-910) teach a flat face electron emissive cathode comprising single crystals of W [100] as well as spherical shaped electrode for electron guns with high electron density. The electrodes could be operated at high angular velocities by choosing the appropriate shape of the electrode (Claims 1-3, Fig-1; 0003, 0009, 0020, 0023). The electrode operational temperature was between 900-1500K (P-0015).

In the analogous art, Nishiyama et al (JP-477) teach an electron source for electron beam apparatus comprising a needle like electrode of W/Mo with an orientation of [100] or [211] coated with mixed oxides of alkaline earth metals. The electrode provided high electron density and operated at 1000K or less after an heat treatment of at least 1500K (Abstract; Claims 6-9; P-0006, 0009; 0002). Applicants acknowledge this as prior art that uses (Ba, Sr, Ca) oxide as the coating material (See Spec. Pg-6, Ln 3-11).

With regard to claim-5, it would have been obvious to a person of ordinary skilled in the art to substitute the electrode design of Terui et al (JP -240) with flat tipped electrode of Terui et al (JP -910) as functional equivalent to benefit from high electron density with predictable results and reasonable expectation of success because the teachings are in the analogous art of electrodes for electron beam apparatus.

With regard to claim-6, it would have been obvious to a person of ordinary skilled in the art to substitute the flat tipped electrode of Terui et al (JP-240) and Terui et al (JP -910) with electrode material of Nishiyama et al (JP -477) as functional equivalent to benefit from high electron density with predictable results and reasonable expectation of success because the teachings are in the analogous art of electrodes for electron beam apparatus.

3. Claims 1-4 and 7-10 are rejected under 35 U.S.C. 103(a) as being obvious over Terui et al (JP 09-270240) in view of Hamada et al (US 6,432,325).

Terui et al (JP-240) teach a thermal field emission cathode having a needle electrode prepared by forming a cover layer comprising zirconium and oxygen on a tungsten single crystal whose axial orientation is  $\langle 100 \rangle$ . In the thermal field emission cathode, at least one element selected from 2A group elements or 3A group elements is added to zirconium oxide to form solid solution, and thereby, cubic system zirconium oxide, which is stable phase to repeated temperature rising and falling, and/or tetragonal system zirconium oxide, which is metastable phase, are/is formed to prevent the coming off of a reservoir (Abstract; Claims 1-3). The preferred composition contained 20 wt% CaO with zirconia (P-0019). The method of making the electrode comprised welding a tungsten wire with  $\langle 100 \rangle$  plane (W[100]) orientation to a tungsten wire. The wire W[100] was coated with a slurry of calcined zirconia and calcia. The slurry coated wire was heated in the range of 1400-1800K under vacuum and applied potential, and cooled without applied potential (P 0012, 0018-0021). The application of positive potential to the tungsten wire to protect it from oxidation under processing conditions would have been obvious because reducing the oxidation of metals by applying positive potential is well known (See Bhavani et al, Abstract, Bull. Mater. Sci., 1980, 2(4), 265-270). The prior art further teaches a scanning electron microscope containing the electrodes, and the use of electrodes in electron beam apparatus (P-0022, 0027).

The prior art fails to teach a composition containing barium per claims 1 and 9-10; composition per claims -3 and 4. It is also silent about the operational parameters per claim-7, operational temperature of the electrode per claim-9, and fails to teach instant claimed temperature range per claim-10.

In the analogous art, Hamada et al teach a hot cathode type electron gun for ultra LSI and electron microscopes containing an electron-emitting electrode (122; Fig-21) made of a tungsten wire coated with the emitter material (Cl-18, Ln 1-24; Fig-21). The emitting material comprised a first metal component selected from Ba, Sr, and Ca and mixtures thereof, and a second material component selected from Ta, Zr, Nb, Ti and Hf and mixtures thereof (Abstract, Cl-4, Ln 11-27; 47-58). The first metal component possessed low work function while the second component reduced the resistivity and increased the melting point of the emitting material (Cl-14, Ln 17-21). Barium and Ta and/or Zr were the

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preferred elements in the composition and a typical composition included Ba-Ta-Zr oxides (CI-20, Table-1; Samples 1, 3 and 5).  $\text{BaZrO}_3$  is encompassed by the composition with the formula  $\text{M}^{\text{I}}\text{M}^{\text{II}}\text{O}_3$  type crystals formed from the preferred elements of Ba and Ta/Zr. Further,  $(\text{Ba}, \text{Sr}, \text{Ca})(\text{Ta}/\text{Zr})\text{O}_3$  is encompassed by the same formula when Ba is partly substituted by Sr and/or Ca, because the prior art is suggestive of using a mixture of these elements( Table-III). The electrode is capable of its use as hot cathode or thermionic action produced a higher luminescence with extended life i.e. high-density/ improved-characteristics and low-deterioration/extended-life (CI-13, Ln 28-30). The electrode is typically used as an electrode in a discharge lamp, electron gun, gas discharge panel, field emission display, fluorescent display tube or electron microscope (CI-2, Ln 37-41).

It would have been obvious to a person of ordinary skilled in the art to substitute the emitter coating material in the electrode of Terui et al (JP -240) with the emitter material of Hamada et al (US-325) as functional equivalent to benefit from increased luminescence/electron-density with reasonable expectation of success, because the teachings are in the analogous art of electrodes for electron guns for electron microscopes, that meets the limitations of claims 1-4.

With regard to claims 7-8, the prior art teaches using the electrode in a SEM and electronic beam apparatus <claim-8>, and the claimed operating parameters in claim-7 would have been obvious to a person of ordinary skilled in the art over optimizing the operating parameters of the equipment as a choice of design of the electrode use, because they have similar composition, structure and utility as electron source, and such use and optimization is well known in the art (See Terui et al, JP 2001-325910; Abstract; P-0004, 0020, 0021, 0023)

With regard to claim-9, the combined prior art teaches a SEM containing the electron gun using the prior art electrode and claimed method of its use would be obvious. The needle temperature in the prior art composition would be obvious because prior art composition, structure and utility are similar to that by the applicants and similar compositions are expected to possess similar properties/characteristics.

With regard to claim-10, the prior art range of 1300-1800K for heating the sample (JP-240) overlaps with instant claimed range of 1000K-1700 K, and In the case where the claimed ranges "overlap or



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lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

4. Claims 5-6 are rejected under 35 U.S.C. 103(a) as being obvious over Terui et al (JP 09-270240) in view of Hamada et al (US 6,432,325) further in view of Terui et al (JP 2001-325910) and Nishiyama et al (JP 10-154477).

The disclosure on the composition and structure of a thermal field emission cathode by Terui et al (JP -240) in view of Harada (US-325) as set forth in rejection-3 under 35 USC 103 (a) is herein incorporated.

The prior art fails to teach the flat tip electrode per claim 5, and a <211> plane per claim-6.

In the analogous art, Terui et al (JP-910) teach a flat face electron emissive cathode comprising single crystals of W [100] as well as spherical shaped electrode for electron guns with high electron density. The electrodes could be operated at high angular velocities by choosing the appropriate shape of the electrode (Claims 1-3, Fig-1; 0003, 0009, 0020, 0023). The electrode operational temperature was between 900-1500K (P-0015).

In the analogous art, Nishiyama et al (JP-477) teach an electron source for electron beam apparatus comprising a needle like electrode of W/Mo with an orientation of [100] or [211] coated with mixed oxides of alkaline earth metals. The electrode provided high electron density and operated at 1000K or less after an heat treatment of at least 1500K (Abstract; Claims 6-9; P-0006, 0009; 0002). Applicants acknowledge this as prior art that uses (Ba, Sr, Ca) oxide as the coating material (See Spec. Pg-6, Ln 3-11).

With regard to claim-5, it would have been obvious to a person of ordinary skilled in the art to substitute the electrode design of Terui et al (JP -240) and Harada et al (US-325) with flat tipped electrode of Terui et al (JP -910) as functional equivalent to benefit from high electron density with predictable results and reasonable expectation of success because the teachings are in the analogous art of electrodes for electron beam apparatus.

With regard to claim-6, it would have been obvious to a person of ordinary skilled in the art to substitute the flat tipped electrode of Terui et al (JP-240), Harada et al (US-325) and Terui et al (JP -910) with electrode material of Nishiyama et al (JP -477) as functional equivalent to benefit from high electron density with predictable results and reasonable expectation of success because the teachings are in the analogous art of electrodes for electron beam apparatus.

5. Claims 1-5 and 7-9 are rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada et al (US 6,432,325) in view of Terui et al (JP 09-270240).

Hamada et al teach a hot cathode type electron gun for ultra LSI and electron microscopes containing an electron-emitting electrode (122; Fig-21) made of a tungsten wire coated with the emitter material that meets the limitation of W/Mo needle in the claims 1 and 9 (Cl-18, Ln 1-24; Fig-21). The emitting material comprised a first metal component selected from Ba, Sr, and Ca and mixtures thereof, and a second material component selected from Ta, Zr, Nb, Ti and Hf and mixtures there of (Abstract, Cl-4, Ln 11-27; 47-58). The first metal component possessed low work function while the second component reduced the resistivity and increased the melting point of the emitting material (Cl-14, Ln 17-21). Barium and Ta and/or Zr were the preferred elements in the composition and a typical composition included Ba-Ta-Zr oxides (Cl-20, Table-1; Samples 1, 3 and 5).  $\text{BaZrO}_3$  is encompassed by the composition with the formula  $\text{M}^{\text{I}}\text{M}^{\text{II}}\text{O}_3$  type crystals formed from the preferred elements of Ba and Ta/Zr. Further,  $(\text{Ba}, \text{Sr}, \text{Ca})(\text{Ta}/\text{Zr})\text{O}_3$  is encompassed by the same formula when Ba is partly substituted by Sr and/or Ca, because the prior art is suggestive of using a mixture of these elements (Table-III). The electrode is capable of its use as hot cathode or thermionic action produced a higher luminescence with extended life i.e. high-density/improved-characteristics and low-deterioration/extended-life (Cl-13, Ln 28-30). The electrode is typically used as an electrode in a discharge lamp, electron gun, gas discharge panel, field emission display, fluorescent display tube or electron microscope (Cl-2, Ln 37-41).

The prior art fails to teach the electrode to be a single crystalline W-wire/needle per claims 1 and 9, and shaped electrode per claim-5. The prior art is silent about the operating parameters per claim-7 and electrode characteristics per claim-9.

In the analogous art, Terui et al (JP-910) teach a flat face electron emissive cathode comprising single crystals of W [100] as well as spherical shaped electrode for electron guns with high electron density. The electrodes could be operated at high angular velocities by choosing the appropriate shape of the electrode (Claims 1-3, Fig-1; 0003, 0009, 0020, 0023). The electrode operational temperature was between 900-1500K (P-0015).

With regard to claims 1-5, it would have been obvious to a person of ordinary skilled in the art to substitute the electrode design of Hamada et al (US- 325) with flat tipped electrode of Terui et al (JP - 910) as functional equivalent to benefit from high electron density with predictable results and reasonable expectation of success because the teachings are in the analogous art of electrodes for electron guns and Hamada is concerned about the a higher luminescence/density.

With regard to claims 7-8, the prior art teaches using the electrode in a SEM and electronic beam apparatus <claim-8>, and the claimed operating parameters in claim-7 would have been obvious to a person of ordinary skilled in the art over optimizing the operating parameters of the equipment as a choice of design of the electrode use, because they have similar composition, structure and utility as electron source, and such use and optimization is well known in the art (See Terui et al, JP 2001-325910; Abstract; P-0004, 0020, 0021, 0023).

With regard to claim-9, the prior art teaches using an electron gun containing the prior art electrode in an electron microscope, and claimed method of its use would be obvious. The instant claimed needle temperature in the prior art composition would be obvious because prior art composition, structure and utility are similar to that by the applicants and similar compositions are expected to possess similar properties/characteristics. Further, the combined prior art teaching of 900-1900K for the operating temperature of the electrode (JP -210, P-0015) overlaps with instant claimed range of 1000K – 1300K, In the case where the claimed ranges "overlap or lie inside ranges disclosed by the prior art" a prima facie case of obviousness exists. In re Wertheim, 541 F.2d 257, 191 USPQ 90 (CCPA 1976); In re Woodruff, 919 F.2d 1575, 16 USPQ2d 1934 (Fed. Cir. 1990).

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6. Claim 6 is rejected under 35 U.S.C. 103(a) as being unpatentable over Hamada et al (US 6,432,325) in view of Terui et al (JP 09-270240).

The disclosure on the composition and structure of a thermal field emission cathode by Hamada et al (US-325) in view of Terui et al (JP -240) as set forth in rejection-5 under 35 USC 103 (a) is herein incorporated.

The prior art fails to teach the flat tip with a <211> plane per claim-6.

In the analogous art, Nishiyama et al (JP-477) teach an electron source for electron beam apparatus comprising a needle like electrode of W/Mo with an orientation of [100] or [211] coated with mixed oxides of alkaline earth metals. The electrode provided high electron density and operated at 1000K or less after an heat treatment of at least 1500K (Abstract; Claims 6-9; P-0006, 0009; 0002). Applicants acknowledge this as prior art that uses (Ba, Sr, Ca) oxide as the coating material (See Spec. Pg-6, Ln 3-11).

It would have been obvious to a person of ordinary skilled in the art to substitute the flat tipped electrode of Hamada et al (US-325) and Terui et al (JP -910) with electrode material of Nishiyama et al (JP -477) as functional equivalent to benefit from high electron density with predictable results and reasonable expectation of success because the teachings are in the analogous art of electrodes for electron guns and Hamada is concerned about high luminescence.

### ***Conclusion***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to KALLAMBELLA VIJAYAKUMAR whose telephone number is (571)272-1324. The examiner can normally be reached on M-F 07-3.30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Stanley Silverman can be reached on 5712721358. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/KMV/  
June 30, 2008.

/Stuart Hendrickson/  
Primary Examiner, Art Unit 1793